

## **REMARKS**

The Non-Final Office Action, mailed June 19, 2009, considered and rejected claims 1-42. In particular, claims 1-11, 14-16, 21-28, 30-34 and 39-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ganesh* (U.S. Patent No. 6,295,610) in view of *Brown* ("Undo for Operators: Building an Undoable E-Mail Store"). Claims 9 and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ganesh* and *Brown* in view of *Kumomura* (U.S. Patent No. 5,963,926). Claim 42 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ganesh*, *Brown*, and *Kumomura* in view of *Kesler* (U.S. Patent No. 7,062,502). Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ganesh* and *Brown* in view of *Craig* (U.S. Patent No. 6,757,708). Claims 13, 17-20 and 35-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ganesh* and *Brown* in view of *Kesler*.<sup>1</sup> Additionally, the drawings were objected to.

By this paper, claims 1, 21 and 42 are amended, while no claims are cancelled or added. Accordingly, following entry of this paper, claims 1-42 remain pending, of which claims 1, 21 and 42 are the independent claims at issue.

### **1. Rejections Under 35 U.S.C. § 103(a)**

As reflected above, Applicant's claims generally relate to methods and computer program products for executing a transaction that includes direct methods to perform the transaction, and which can at least partially reverse the effects of the direct methods of the transaction. As recited in claim 1, for example, such a method includes the creation and maintenance of a mapping between groups of direct methods and corresponding groups of inversion methods, which inversion methods are reusable for a number of different transactions. After creation of the mapping, a transaction is begun. A group of direct methods is run as part of the transaction. Also within the transaction, the mapping is used to identify the corresponding group of one or more inversion methods corresponding to the direct methods. The identity of the corresponding group of inversion methods is then recorded in a compensation record for the transaction. The corresponding group of inversion methods are reusable with multiple transactions and, when

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<sup>1</sup> Although the prior art status of the cited art is not being challenged at this time, Applicant reserves the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

invoked, operate independent of other methods and transactions, so as to only undo the effects of the particular group of direct methods to which the indirect methods correspond to in the mapping. Independent claim 21 recites a computer program product generally corresponding to the method of claim 1. Additionally, claim 42 recites a method having similar claim elements, but further defining various aspects, including the structure of the mapping and compensation records, and the manner in which the transaction is initiated.

While the cited art generally relates to undoing actions, Applicant respectfully submits that the cited art—whether cited alone or in combination—fails to render the pending claims unpatentable for at least the reason that it fails to disclose or reasonably support indirect methods that are not only reusable for multiple transactions, but which act independent of other transactions and other methods even within the same transaction.

For example, *Ganesh* generally describes performance of a transaction and the storage of undo data items that include specific changes made during the transaction, so that such changes can be undone. More particularly, *Ganesh* discloses a system for performing recovery in which two or more changes made by a particular transaction can be removed in parallel. As part of such a system rollback entries are created to include information to undo changes to a prior state. The rollback entry includes a transaction ID, a block number, a prior change pointer, and undo information. (Col. 8, ll. 27-33). This information identifies the transaction which performed the operation that corresponds to the undo record, the data container on which the operation was performed, and the data necessary for undoing the operation that was performed on the identified block by the identified transaction. (Col. 8, ll. 33-39). While *Ganesh* depicts physical pointers to rollback entries, rollback entries do not contain physical pointers to the undo record that includes the most recent change information. Instead, each rollback entry contains a record of the entry that was overwritten in the transaction list by the entry for the transaction at issue. As a result, by applying undo information in an undo record, the corresponding undo pointer in a transaction list is automatically updated to point to the next most recent change information. (Col. 9, ll. 4-21).

In other words, *Ganesh* discloses a system that tracks changes by maintaining records of the changes on a transaction-by-transaction basis. Specifically, when a change is made, the change is logged in the rollback entry by including a record of the entry that was changed by the particular change being made. Notably, each of these entries are made on a transactional basis.

As a result, when a change is made, the entry is logged to include the undo information and the transaction to which it relates. Consequently, all undo information is specifically tied to the transaction of which it is a part. In direct contrast thereto, Applicant's claims note that inverse methods (i.e., methods to reverse a direct method) can be used for any of multiple transactions and invoking of an inverse method is independent of other transactions and even other methods of the same transaction. The mapping of rollback entries in *Ganesh* cannot, therefore possibly read upon the inverse methods of the pending claims in which the mapping ties direct and inverse methods together, but without tying inverse methods to a particular transaction.

Applicant further respectfully submits that *Brown* fails to remedy the deficiencies of *Ganesh*. In particular, *Brown* describes an *Operator Undo* system in which a generic undo engine is created and can be expanded to multiple different services. (p. 3, Col. 2, first full paragraph). The design of the system is based on a Three R's Model, which includes Rewind, Repair, and Replay. (p. 2, Col. 2, first full paragraph). In the Rewind step, all system state is physically rolled back in time to a point before damage occurred. In the Repair step, the operator alters the rolled-back system to prevent the problem from reoccurring, and in the Replay step, the repaired system is rolled forward to the present by replaying portions of the previously-rewound timeline on the repaired system. (*Id.*).

Notably, there are a few "essential" design elements captured in the Three-R's undo model. (p. 2, Col. 2, third full paragraph). For example, one essential design element is that the rewind, or "undo" step is implemented as a physical rewind by using a single operation to restore a previous snapshot of a system's hard state. (*Id.*). Thus, all state of the system, regardless of the source or reason for a state change, is rolled back, such that undo actions are not only based on time, rather than actions, but it further requires no mapping at all as the entire prior state is performed independent of the actions used to get there. Moreover, the rolling back is not merely a minor element of the system, but a deliberate design choice as only by rolling back all state was it determined that they wouldn't need to worry about corrupt state escaping the rewind roll-back and persisting to cause problems during replay. (*Id.*; p. 3, Col. 1, second full paragraph).

Accordingly, *Brown* discloses a global undo operation in which an entire system is restored to a prior state by a physical undo to change system state. Such an undo operation does not, however, use any inverse methods acquired through a mapping, but merely uses a snapshot of prior state. Moreover, there is no use of inverse methods that act independent of other actions

in the same or different transactions as the undo affects the entire system, and not merely the portion on a transaction related to the direct methods mapped to the corresponding indirect methods. Thus, the combination of *Ganesh* and *Brown* discloses, at most, a system in which a full transaction, at a minimum, has all actions undone, whereas the pending claims allow actions to be undone independent of other actions in the same or in a different transaction.

Applicant further respectfully submits that *Kumomura*, *Kesler*, and *Craig* fail to remedy the deficiencies of *Ganesh* and *Brown*. In particular, Applicant respectfully submits that *Ganesh* and *Brown*, when cited in any combination with the other art, fails to disclose or suggest the pending claims which each include at least indirect methods that are reusable and, when invoked, undo actions of a particular set of direct actions, independent of other actions in the same or different transactions, as recited in combination with the other claim elements.

For instance, *Craig* discloses a system that caches dynamic content and determines when the cached content should be invalidated or purged. *Craig* does not, however, have any disclosure relating to mapping of any sort, or to a transaction-based system, let alone mapping of direct methods to inverse methods that undo the direct methods, or that are reusable in any manner. Accordingly, when *Craig* is combined with *Ganesh*, the combination fails to disclose or reasonably support a mapping of direct/indirect methods in which the indirect methods can be performed for any of numerous transactions and when invoked undo particular actions independent of other actions in the same or different transactions.

*Kumomura* is similarly deficient in this regard. For example, *Kumomura* discloses a computer-implemented method for processing insurance transactions using one or multiple cards. In *Kumomura*, the payment of insurance is performed utilizing an automatic transaction processor. The system may, for example, connect the payor of the insurance contract's bank account to the insurance payment system so that when the appointed time for payment comes, the system can automatically deduct the cost of insurance from the payor's account. If the balance is less than the amount necessary, an additional method of payment is selected and an insurance card can be input. An insurance policy may also be cancelled by the user. Accordingly, *Kumomura* relates to paying for and cancelling an insurance policy (and transactions to pay and cancel the same). Such transactions are fundamentally different from those at issue in the claims and disclosed with respect to *Ganesh*. Further, the cancellation of the insurance contract does not include mapping a direct method with an inverse method, let alone

an inverse method that is reusable for multiple transactions. Thus, the combination of *Ganesh*, *Kumomora* and *Craig* also fails to disclose or reasonably support Applicant's pending claims.

*Kesler* is equally devoid of additional relevant disclosure. Specifically, *Kesler* discloses a SOAP message and the passage of parameters through SQL. Applicant notes, however, that nothing in *Kesler* appears to be related to the storage of inversion methods, the use of parameters for effecting inversion methods, or mapping direct and inversion methods, or even transactional processing. As a result, *Kesler*, whether cited alone or in combination with the other art of record, also fails to disclose or reasonably support creation or a mapping that relates direct and inverse methods, particularly when considering that the inverse methods are usable for multiple transactions and that *Ganesh* contains the expressly contrary teaching of keeping undo records tied specifically to the transactions in which changes are made.

## **2. Objections to the Drawings**

With regard to the objections made to Figures 1, 2, 4, 6 and 7, Applicant respectfully traverses. In particular, the Office objected to Figure 1 as there is an arrow connector between items 120 and 112 that is not numbered or labeled. Figures 2, 4, 6 and 7 were objected to for having arrows that "appear informal."

With regard to drawings, 37 C.F.R. § 1.84 is the applicable section of the rules relating to the standards for drawings. Notably, the Office has not stated that any of the drawings fail to satisfy a rule of the C.F.R., leaving it to Applicant to guess whether the Office would merely prefer drawings in a different form, or is basing the objection on the actual standards that must be satisfied. If the former, Applicant respectfully submits that the Office lacks the authority to make an objection to the drawings solely on the basis that it prefers changes to the drawings. If the latter, Applicant respectfully submits that the drawings satisfy all standards set forth in 37 C.F.R. § 1.84.

For example, with respect to Figure 1, 37 C.F.R. § 1.84(p) appears to be the only applicable subsection as it relates to "Numbers, letters, and reference characters." In such subsection, reference characters, numerals, sheet numbers, and view numbers must be plain and legible, and must not be associated with brackets, inverted commas, etc. They must also be oriented in the same direction. (37 C.F.R. § 1.84(p)(1)). Further, the English alphabet and Greek alphabets are the alphabets that should be used. (37 C.F.R. § 1.84(p)(2)). Additionally,

numbers, letters, and reference characters must measure at least .32 cm in height, and should not interfere with drawing comprehension. (37 C.F.R. §. 1.84(p)(3)). The same part of an invention that appears in multiple views should be designated with the same reference character and not be used to designate different parts. (37 C.F.R. §. 1.84(p)(4)). Finally, reference characters not mentioned in the description shall not appear in the drawings, and reference characters mentioned in the description must appear in the drawings. (37 C.F.R. §. 1.84(p)(5)).

Notably, nothing in 37 C.F.R. § 1.84 appears to require that every element of a drawing must be referenced. Indeed, 37 C.F.R. § 1.84(p)(5) appears to implicitly note the opposite, inasmuch as an element not numbered in the description cannot be numbered in the drawings. In other words, the Rules clearly contemplate that drawings can have elements that are unnumbered if for no other reason than they are not numbered in the description. Accordingly, the Rules appear to allow for elements to be unnumbered, and the Office has further provided no rule which requires every drawing element to be numbered or labeled. Indeed, such a requirement could easily prove unworkable. For instance, would each surface, and each edge, etc. of a physical object need to be referenced?

With regard to the objection to Figures 2, 4, 6 and 7, Applicant further respectfully traverses the objection to the drawings. Specifically, each was objected to for reasons related to arrows appearing to be informal. Initially, Applicant notes that the informality of a drawing appears irrelevant. Specifically, the "Office no longer considers drawings as formal or informal." (M.P.E.P. § 608.02(b)(I)). Indeed, "Examiners should review the drawings for disclosure of the claimed invention and for proper use of reference numerals." (*Id.*).

Inasmuch as the only basis for the objection of Figures 2, 4, 6 and 7 appears to be on an "informality" standard which is not recited in the Rules, and not the standard followed by the Office, Applicant respectfully submits that the objection is overcome. Nevertheless, Applicant further notes that nothing in 37 C.F.R. § 1.84 appears to support the objection made by the Office. Specifically, 37 C.F.R. § 1.84(r) relates to the use of arrows. As noted in such section, arrows may be used at the ends of lines so long as the meaning is clear, and freestanding arrows indicate entire sections towards which it points. (37 C.F.R. §. 1.84(r)(1)). Notably, nothing states that only a single arrow can be used. Moreover, Applicant respectfully submits that the meaning of the multiple freestanding arrows is also clear. For example, in Figure 2, the three

arrows clearly indicate that network environment 200 includes each of first computing system 201, second computing system 202, and message exchange pattern 203.

Accordingly, Applicant respectfully submits that the drawings satisfy 37 C.F.R. § 1.84 and therefore comply with all applicable standards. To the extent the Office wishes to maintain the objection, Applicant respectfully requests that the Office articulate which drawing standard is in conflict with the provided Figures.

In view of the foregoing, Applicant respectfully submits that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that this should not be construed as Applicant acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicant reserves the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicant specifically requests that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at (801) 533-9800.

Dated this 21st day of September, 2009.

Respectfully submitted,

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